

March 14, 2023

Docket No.: 52-026

ND-23-0220
10 CFR 52.99(c)(1)

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555-0001

Southern Nuclear Operating Company
Vogtle Electric Generating Plant Unit 4
ITAAC Closure Notification on Completion of ITAAC 2.6.03.07 [Index Number 616]

Ladies and Gentlemen:

In accordance with 10 CFR 52.99(c)(1), the purpose of this letter is to notify the Nuclear Regulatory Commission (NRC) of the completion of Vogtle Electric Generating Plant (VEGP) Unit 4 Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) Item 2.6.03.07 [Index Number 616]. This ITAAC confirms that analyses exist for the as-built Class 1E dc and Uninterruptible Power Supply System (IDS). The closure process for this ITAAC is based on the guidance described in Nuclear Energy Institute (NEI) 08-01, "Industry Guideline for the ITAAC Closure Process under 10 CFR Part 52," which was endorsed by the NRC in Regulatory Guide 1.215.

This letter contains no new NRC regulatory commitments. Southern Nuclear Operating Company (SNC) requests NRC staff confirmation of this determination and publication of the required notice in the Federal Register per 10 CFR 52.99.

If there are any questions, please contact Kelli Roberts at 706-848-6991.

Respectfully submitted,



Jamie M. Coleman
Regulatory Affairs Director Vogtle 3 & 4

Enclosure: Vogtle Electric Generating Plant (VEGP) Unit 4
Completion of ITAAC 2.6.03.07 [Index Number 616]

JMC/MKO/sfr

U.S. Nuclear Regulatory Commission
ND-23-0220
Page 2 of 2

cc: Regional Administrator, Region II
 Director, Office of Nuclear Reactor Regulation (NRR)
 Director, Vogtle Project Office NRR
 Senior Resident Inspector – Vogtle 3 & 4

**Southern Nuclear Operating Company
ND-23-0220
Enclosure**

**Vogtle Electric Generating Plant (VEGP) Unit 4
ITAAC Closure Notification on Completion of ITAAC 2.6.03.07 [Index Number 616]**

ITAAC Statement

Design Commitment

7. The IDS dc battery fuses and battery charger circuit breakers, and dc distribution panels, MCCs, and their circuit breakers and fuses, are sized to supply their load requirements.
8. Circuit breakers and fuses in IDS battery, battery charger, dc distribution panel, and MCC circuits are rated to Interrupt fault currents.
9. The IDS batteries, battery chargers, dc distribution panels, and MCCs are rated to withstand fault currents for the time required to clear the fault from its power source.
10. The IDS electrical distribution system cables are rated to withstand fault currents for the time required to clear the fault from its power source.

Inspections/Tests/Analyses

Analyses for the as-built IDS dc electrical distribution system to determine the capacities of the battery fuses and battery charger circuit breakers, and dc distribution panels, MCCs, and their circuit breakers and fuses, will be performed.

Analyses for the as-built IDS dc electrical distribution system to determine fault currents will be performed.

Analyses for the as-built IDS dc electrical distribution system to determine fault currents will be performed.

Analyses for the as-built IDS dc electrical distribution system to determine fault currents will be performed.

Acceptance Criteria

Analyses for the as-built IDS dc electrical distribution system exist and conclude that the capacities of as-built IDS battery fuses and battery charger circuit breakers, and dc distribution panels, MCCs, and their circuit breakers and fuses, as determined by their nameplate ratings, exceed their analyzed load requirements.

Analyses for the as-built IDS dc electrical distribution system exist and conclude that the analyzed fault currents do not exceed the interrupt capacity of circuit breakers and fuses in the battery, battery charger, dc distribution panel, and MCC circuits, as determined by their nameplate ratings.

Analyses for the as-built IDS dc electrical distribution system exist and conclude that the fault current capacities of as-built IDS batteries, battery chargers, dc distribution panels, and MCCs, as determined by manufacturer's ratings, exceed their analyzed fault currents for the time required to clear the fault from its power source as determined by the circuit interrupting device coordination analyses.

Analyses for the as-built IDS dc electrical distribution system exist and conclude that the IDS dc electrical distribution system cables will withstand the analyzed fault currents, as determined by

manufacturer's ratings, for the time required to clear the fault from its power source as determined by the circuit interrupting device coordination analyses.

ITAAC Determination Basis

Analyses for the as-built Class 1E dc and Uninterruptible Power Supply System (IDS) dc electrical distribution system are performed to verify the system is sized to supply the load requirements, the analyzed fault currents do not exceed the interrupting capacity of the protective devices, and the system equipment and cables are rated to withstand fault currents.

7. Analyses for the as-built IDS dc electrical distribution system exist and conclude that the capacities of as-built IDS battery fuses and battery charger circuit breakers, and dc distribution panels, MCCs, and their circuit breakers and fuses, as determined by their nameplate ratings, exceed their analyzed load requirements.

Analyses for the as-built IDS dc electrical distribution system are performed to verify that the capacities of as-built IDS battery fuses and battery charger circuit breakers, and switchboards, dc distribution panels, motor control centers (MCCs), and their circuit breakers and fuses ("the IDS equipment"), as determined by their nameplate ratings, exceed their analyzed load requirements.

The load requirements of the IDS batteries, chargers, inverters, and regulating transformers are determined to ensure power is provided to the loads required following a loss of all ac power sources, coincident with a design basis accident. The load requirements of the Division A and D equipment are based upon providing the momentary and continuous loads required during the first 24-hours of the event. The load requirements of the Division B and C equipment are based upon providing the momentary and continuous loads required during the first 72-hours following the event. The load requirements and equipment capacity analyses are documented in APP-IDS-E0C-001 (Reference 4).

The nameplate ratings of the IDS equipment are inspected in accordance with the Construction Quality Verification Program (Reference 8). The as-built nameplate ratings of the IDS equipment are compared to the analyzed 24-hour and 72-hour load requirements, to verify the capacities of the IDS equipment exceed the analyzed load requirements. The results of these analyses and comparisons are documented in the Unit 4 Principal Closure Document SV4-IDS-E0R-006 Rev.0 (Reference 5), supporting the Unit 4 ITAAC 2.6.03.07 Completion Package (Reference 6), and conclude that the capacities of as-built IDS battery fuses and battery charger circuit breakers, and switchboards, dc distribution panels, MCCs, and their circuit breakers and fuses, as determined by their nameplate ratings, exceed their analyzed load requirements.

Principal Closure Document SV4-IDS-E0R-006 Rev 0 exists and is available for NRC inspection as part of the Unit 4 ITAAC 2.6.03.07 Completion Package.

8. Analyses for the as-built IDS dc electrical distribution system exist and conclude that the analyzed fault currents do not exceed the interrupt capacity of circuit breakers and fuses in the battery, battery charger, dc distribution panel, and MCC circuits, as determined by their nameplate ratings.

Analyses for the as-built IDS dc electrical distribution system are performed to verify that the analyzed fault currents do not exceed the interrupting capacity of circuit breakers and fuses in the battery, battery charger, switchboards, dc distribution panel, and MCC ("the IDS equipment") circuits, as determined by their nameplate ratings.

The minimum required interrupting capacity rating of circuit breakers and fuses in the IDS equipment circuits are determined by calculation and summarized in the IDS Short Circuit Analysis (Reference 4) and the IDS Protection Coordination Study (Reference 7). These calculations utilize the worst case short circuit contribution from each battery, battery charger, and motor load of the IDS, which determines the minimum required protective device interrupting capacity in accordance with the criteria stated in the IEEE Standard 946, Sections 7.1 and 7.9 (Reference 1), IEEE Standard 741 (Reference 2), and IEEE Standard 242 (Reference 3).

The nameplate capacity ratings of the as-built IDS circuit breakers and fuses in the IDS equipment circuits are inspected in accordance with the Construction Quality Verification Program (Reference 8). The nameplate rating for each of these circuit breakers and fuses is evaluated to assure the device interrupting capacity exceeds the minimum required interrupting capacity rating.

The combination of the as-built IDS inspection results and the analyses documented in the IDS Short Circuit Analysis and the IDS Protection Coordination Study conclude that the analyzed fault currents do not exceed the interrupting capacity of circuit breakers and fuses in the battery, battery charger, switchboards, do distribution panel, and MCC circuits, as determined by their nameplate ratings. The as-built IDS inspection results, the IDS Short Circuit Analysis and the IDS Protection Coordination Study analysis results are documented in the Unit 4 Principal Closure Document SV4-IDS-E0R-006 Rev 0 (Reference 5) supporting the Unit 4 ITAAC 2.6.03.07 Completion Package (Reference 6).

Principal Closure Document SV4-IDS-E0R-006 Rev 0 exists and is available for NRC inspection as part of the Unit 4 ITAAC 2.6.03.07 Completion Package.

9. Analyses for the as-built IDS dc electrical distribution system exist and conclude that the fault current capacities of as-built IDS batteries, battery chargers, dc distribution panels, and MCCs, as determined by manufacturer's ratings, exceed their analyzed fault currents for the time required to clear the fault from its power source as determined by the circuit interrupting device coordination analyses.

Analyses for the as-built IDS dc electrical distribution system are performed to verify that the fault current capacities of as-built IDS batteries, battery chargers, switchboards, dc distribution panels, and MCCs ("the IDS equipment"), as determined by manufacturer's ratings, exceed their analyzed fault currents for the time required to clear the fault from its power source as determined by the circuit interrupting device coordination analyses. Fault current and circuit interrupting device coordination analysis requirements for the IDS dc electrical distribution system are performed in accordance with the criteria stated in IEEE Standard 946, (Reference 1), IEEE Standard 741 (Reference 2), and IEEE Standard 242 (Reference 3).

The worst-case short circuit (fault) currents of the IDS equipment are determined by the IDS Short Circuit Analysis (Reference 4). The results of this analysis are used in combination with

the circuit interrupting device IDS Protection Coordination Study (Reference 7) to determine the worst case analyzed fault currents.

The manufacturer's nameplate fault current ratings of the IDS equipment are inspected in accordance with the Construction Quality Verification Program (Reference 8). The as-built fault current rating for each piece of the IDS equipment, as documented in inspection records, are then compared to the fault current information determined in References 4 and 7 to verify that the fault current capacities of the IDS equipment exceed the analyzed fault currents.

The results of these analyses and comparisons are documented in the Unit 4 Principal Closure Document SV4-IDS-E0R-006 Rev 0 (Reference 5) supporting the Unit 4 ITAAC 2.6.03.07 Completion Package (Reference 6) and conclude that the fault current capacities of as-built IDS batteries, battery chargers, switchboards, dc distribution panels, and MCCs, as determined by manufacturer's ratings, exceed their analyzed fault currents for the time required to clear the fault from its power source as determined by the circuit interrupting device coordination analyses.

Principal Closure Document SV4-IDS-E0R-006 Rev 0 exists and is available for NRC inspection as part of the Unit 4 ITAAC 2.6.03.07 Completion Package.

10. Analyses for the as-built IDS dc electrical distribution system exist and conclude that the IDS dc electrical distribution system cables will withstand the analyzed fault currents, as determined by manufacturer's ratings, for the time required to clear the fault from its power source as determined by the circuit interrupting device coordination analyses.

Analyses for the as-built IDS dc electrical distribution system are performed to verify that the IDS dc electrical distribution system cables will withstand the analyzed fault currents, as determined by manufacturer's ratings, for the time required to clear the fault from its power source as determined by the circuit interrupting device coordination analyses. Fault current and circuit interrupting device coordination analysis requirements for the IDS dc electrical distribution system are performed in accordance with the criteria stated in IEEE Standard 946, (Reference 1), IEEE Standard 741 (Reference 2), and IEEE Standard 242 (Reference 3).

The worst-case short circuit (fault) currents of the as-built IDS dc electrical distribution system cables are determined by calculation and are summarized in the IDS Short Circuit Analysis (Reference 4). The results of this analysis are used in combination with the circuit interrupting device IDS Protection Coordination Study (Reference 7) to determine the worst case analyzed fault currents.

The as-built IDS dc electrical distribution system cables are inspected in accordance with the Construction Quality Verification Program (Reference 8). Each cable is inspected by Quality Control when it is removed from the specified cable reel. The manufacturer's unique cable reel number is recorded during the inspection. The cable reel number provides traceability to the manufacturer's rating of the cable. Each cable termination is inspected by Quality Control following installation. The inspection records provide traceability to the manufacturer's rating for each cable terminal.

The manufacturer's rating of the cable and cable terminals, as traceable through inspection records, are compared to the fault current information determined in References 4 and 7 to verify that the fault current capacities of as-built IDS dc electrical distribution system cables, as

determined by manufacturer's ratings, exceed their analyzed fault currents. The results of these analyses and comparisons are documented in the Unit 4 Principal Closure Document SV4-IDS-E0R-006 Rev 0 (Reference 5) supporting the Unit 4 ITAAC 2.6.03.07 Completion Package (Reference 6), and conclude that the fault current capacities of as-built IDS dc electrical distribution system cables, as determined by manufacturer's ratings, exceed their analyzed fault currents for the time required to clear the fault from its power source as determined by the circuit interrupting device coordination analyses.

Principal Closure Document SV4-IDS-E0R-006 Rev 0 exists and is available for NRC inspection as part of the Unit 4 ITAAC 2.6.03.07 Completion Package.

ITAAC Finding Review

In accordance with plant procedures for ITAAC completion, Southern Nuclear Operating Company (SNC) performed a review of all findings pertaining to the subject ITAAC and associated corrective actions. This review found there are no relevant ITAAC findings associated with this ITAAC.

ITAAC Completion Statement

Based on the above information, SNC hereby notifies the NRC that ITAAC 2.6.03.07 was performed for VEGP Unit 4 and that the prescribed acceptance criteria were met.

Systems, structures, and components verified as part of this ITAAC are being maintained in their as-designed, ITAAC compliant condition in accordance with approved plant programs and procedures.

References (available for NRC inspection)

1. IEEE Standard 946, "IEEE Recommended Practice for the Design of DC Auxiliary Power Systems for Generating Stations," 1992
2. IEEE Standard 741, "IEEE Standard Criteria for the Protection of Class 1E Power Systems and Equipment in Nuclear Power Generating Stations," 1997
3. IEEE Standard 242, "IEEE Recommended Practice for Protection and Coordination of Industrial and Commercial Power Systems," 1986
4. APP-IDS-E0C-001, "Class 1E 250 VDC Battery Sizing, Charger Sizing, and Available Short Circuit Current", Rev. 9
5. SV4-IDS-E0R-006 Rev.0, "Vogtle Unit 4 IDS System ITAAC 616 As-built Analyses Report"
6. 2.6.03.07-U4-CP-Rev0, ITAAC Completion Package
7. APP-IDS-E0C-011 Rev.4, "Class 1E (IDS) 250V DC System – Coordination Study"
8. 26139-000-4MP-T81C-N7101, "Construction Quality Verification Program"